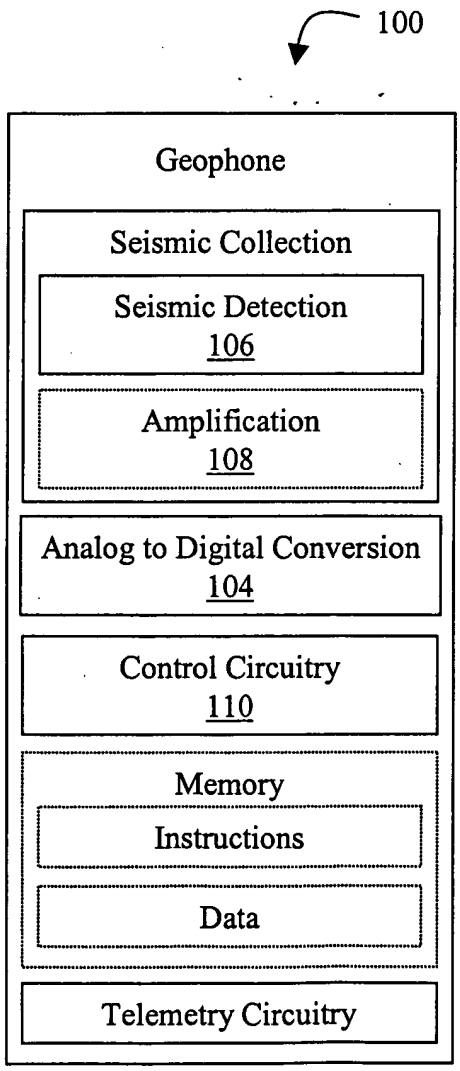
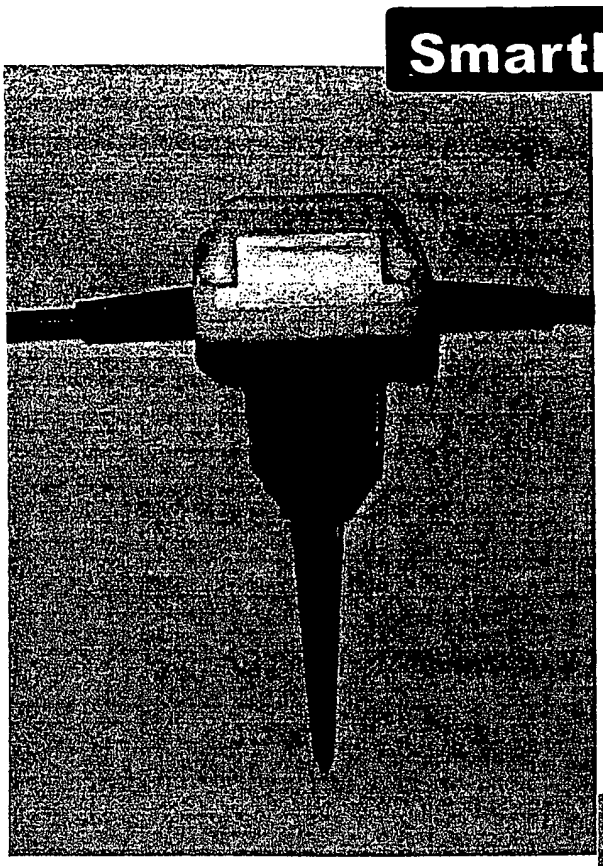
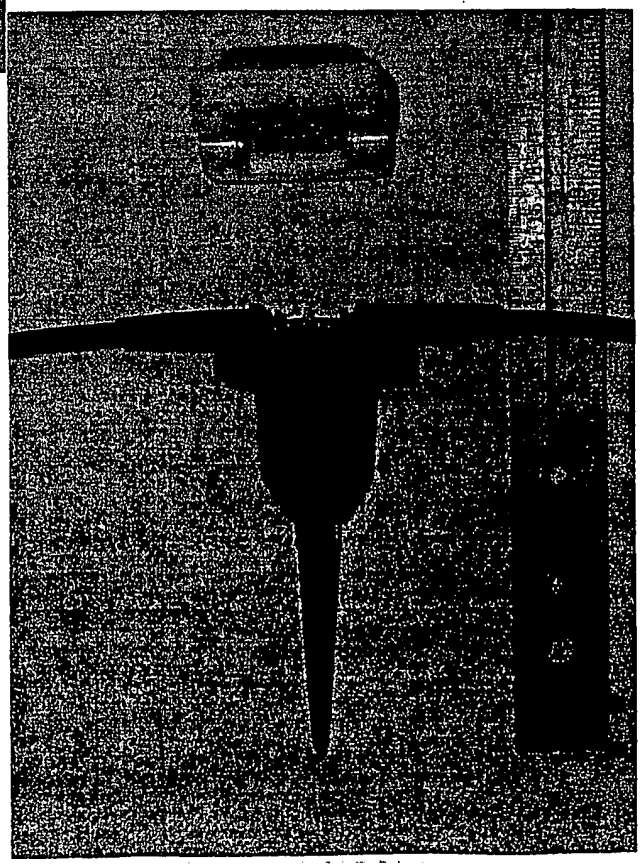

100
Geophone
Seismic Collection
Seismic Detection
106
Amplification
108
Analog to Digital Conversion
104
Control Circuitry
110
Memory
Instructions
Data
Telemetry Circuitry

Figure 1



Assembled SmartPhone™

Figure 2A



SmartPhone™ with Cover Removed

Figure 2B

10/02/2006 15:07:00

Interface Board Assembly

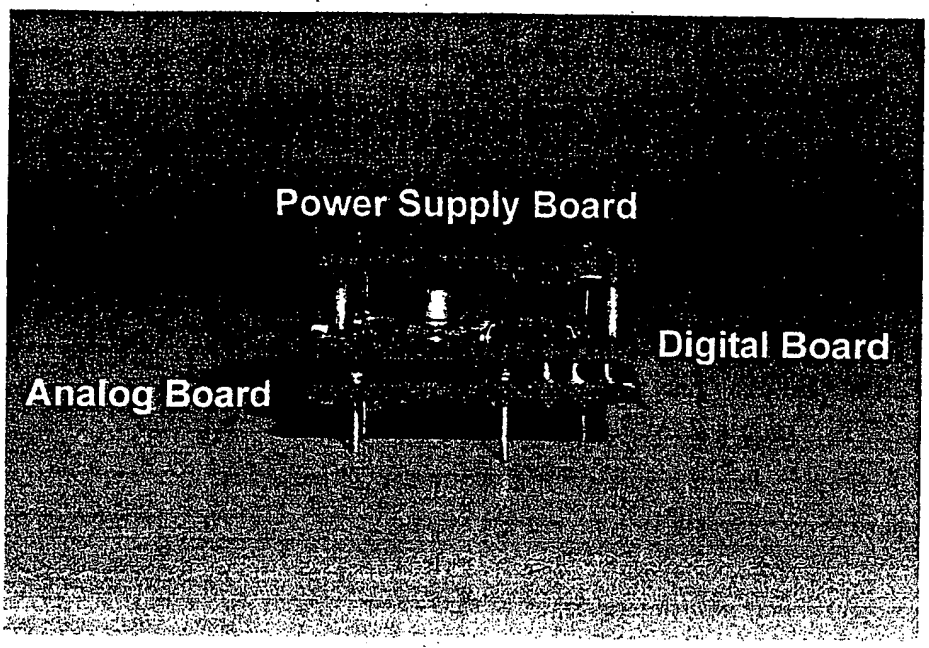
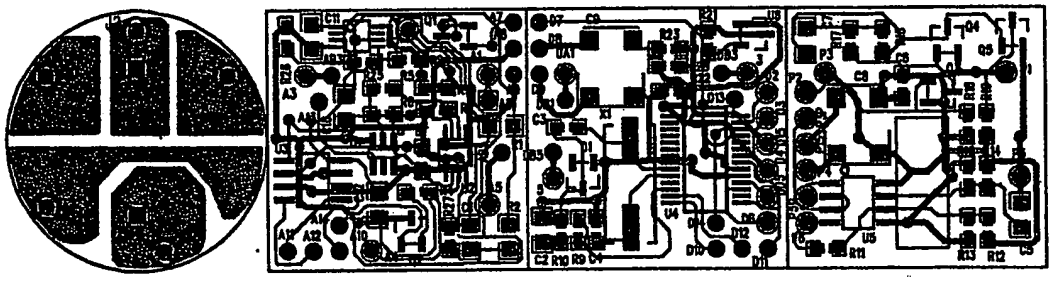


Figure 3

Docket Technet



ANALOG
+5A
AGND

DIGITAL
+5D
DGND

POWER
+5C
CGND
XCV

NOTES:
1. ANALOG AND DIGITAL FOLD CIRCUIT SIDES TOGETHER
2. POWER AND DIGITAL FOLD COMPONENT SIDES TOGETHER
3. WHEN FOLDED X1 COMPONENT ON DIGITAL BOARD SHOULD FOLD OVER A BLANK AREA ON POWER BOARD.
4. TP1...TP5 WILL HOLD PINS THAT PLUG INTO JUG BOARD.
5. SIGNALS SENSOR+ AND SENSOR- (TP1 & TP2):
   A. MUST BE ROUTED TOGETHER.
   B. MUST BE KEPT AWAY FROM OTHER SIGNALS.
   C. SHOULD BE 'SHIELDED' WITH AN AGND LAND

Figure 4

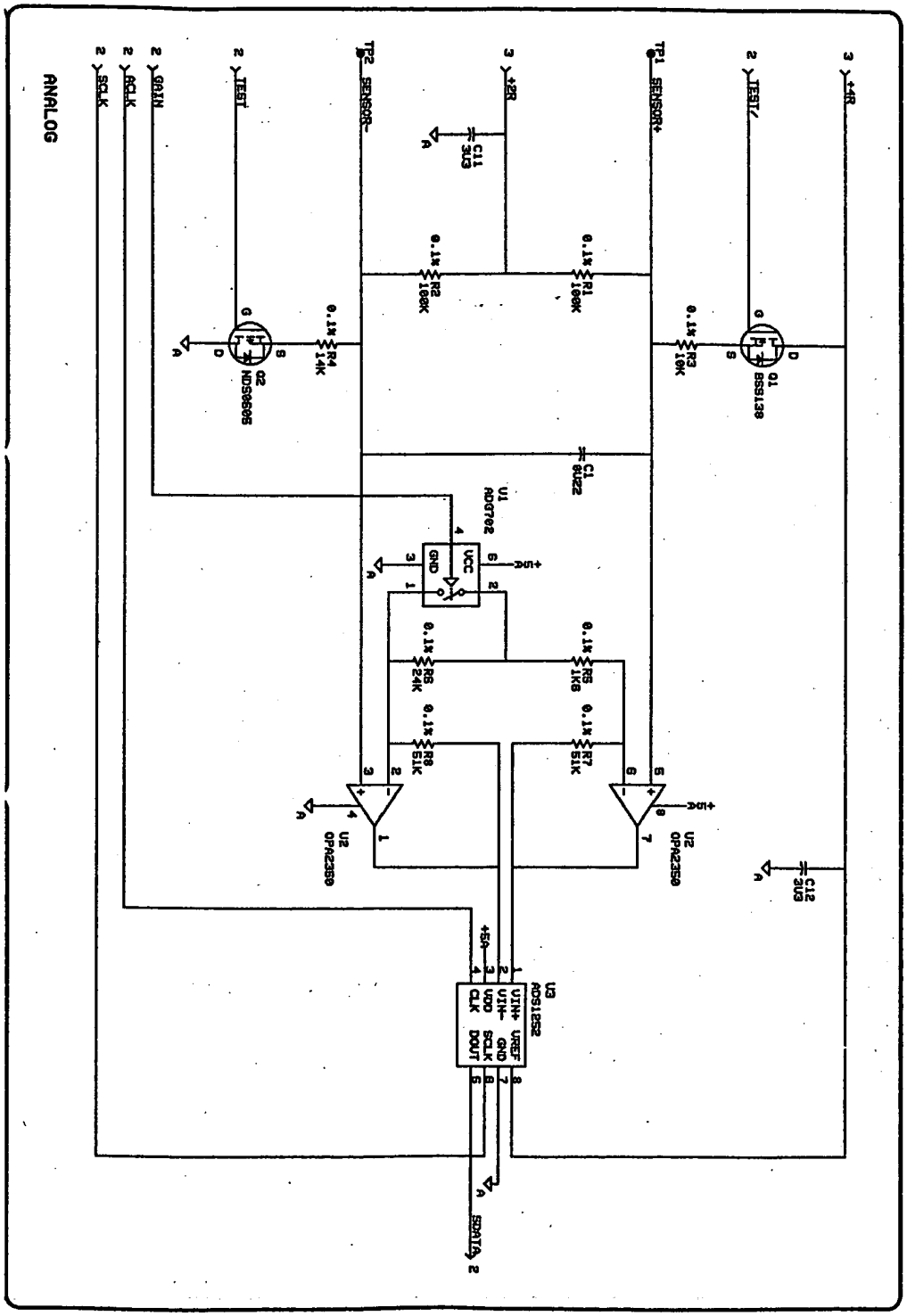

ANALOG
SCLK
ACLK
GAIN
TEST
TP2 SENSOR-
+2R
TP1 SENSOR+
TEST
+4R
C11 3U3
R1 100K
R2 100K
R3 10K
R4 14K
Q2 NDS9606
Q1 BSS138
C1 0U22
U1 ADG702
VCC
GND
R5 24K
R6 1K6
R7 51K
R8 51K
U2 OPA2350
C12 2U3
U3 ADS1252
VIN+
VIN-
VDD
CLK
GND
SCLK
DOUT
VREF
SDATA

Figure 5

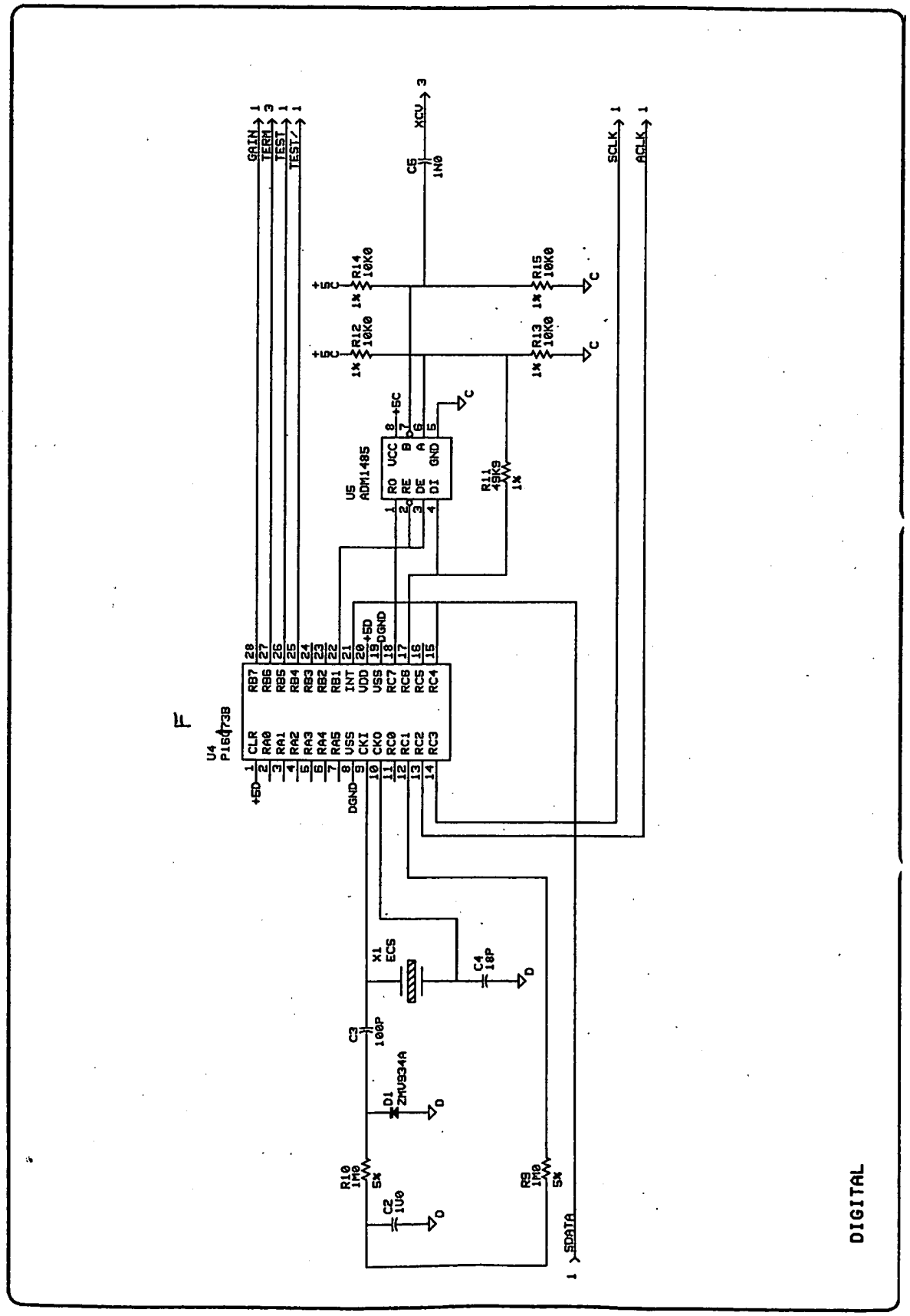

GAIN
TERM
TEST
TEST
XCV
SCLK
ACLK
C5
1N0
R14
10K0
R15
10K0
R12
10K0
R13
10K0
+5C
U5
ADM1485
RO VCC
RE B
DE A
DI GND
R11
49K9
U4
P16F73B
CLR RB7
RA0 RB6
RA1 RB5
RA2 RB4
RA3 RB3
RA4 RB2
RA5 RB1
VSS INT
CKI VDD
CKO VSS
RC0 RC7
RC1 RC6
RC2 RC5
RC3 RC4
+5D
DGND
X1
ECS
C4
18P
C3
100P
D1
ZMV934A
R10
1M0
5%
R9
1M0
5%
C2
1U0
SDATA
DIGITAL

Figure 6

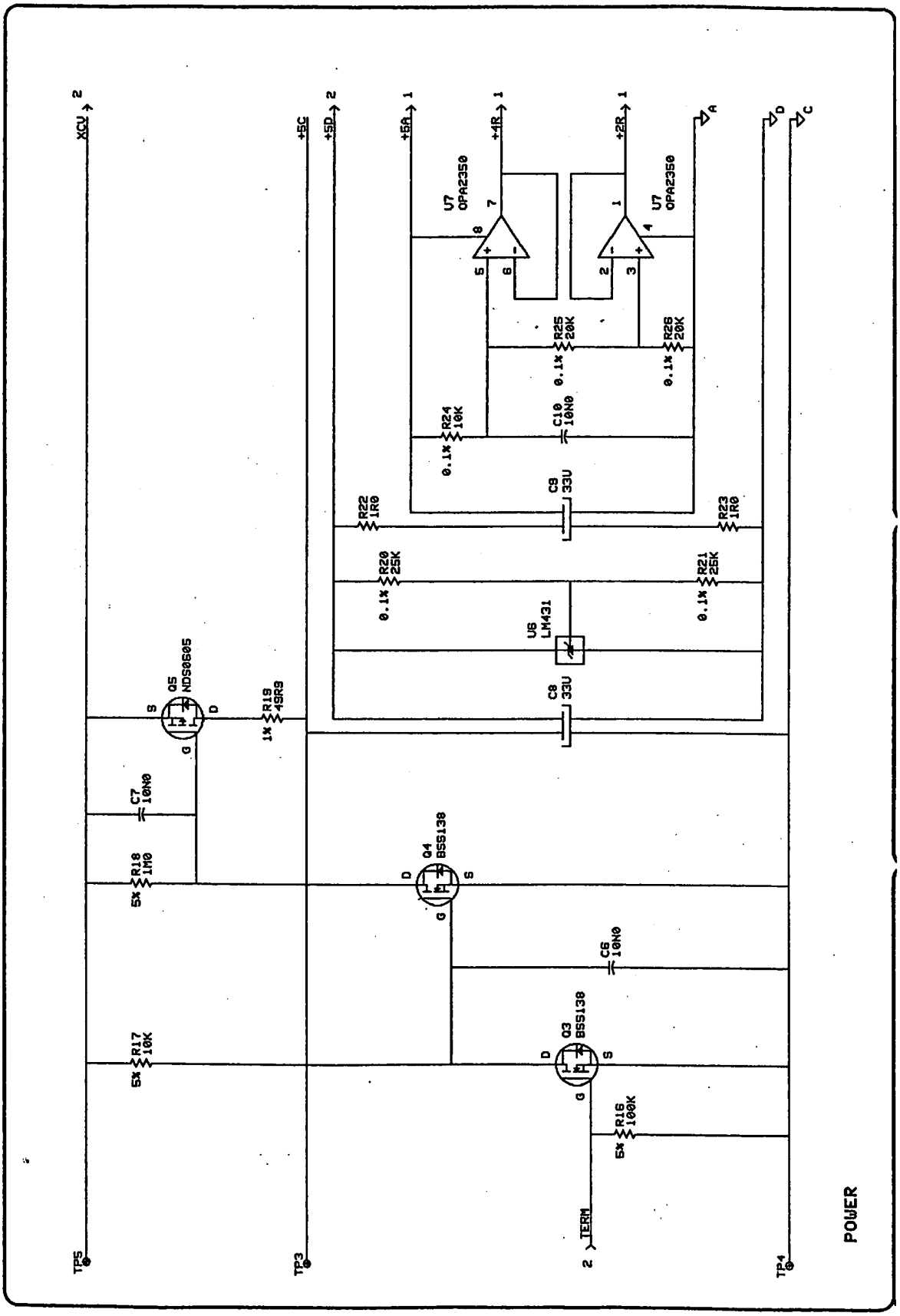

XCU
+5C
+5D
+5A
+1R
+2R
U7 OPA2350
U7 OPA2350
R25 20K 0.1%
R26 20K 0.1%
R24 10K 0.1%
C10 10N0
C9 33U
R22 1R0
R23 1R0
R20 25K 0.1%
R21 25K 0.1%
U8 LM431
C8 33U
Q5 NDS0605
R19 49R9 1%
C7 10N0
R18 1M0 5%
Q4 BSS138
C6 10N0
R17 10K 5%
Q3 BSS138
R16 100K 5%
TERM
TP5
TP3
TP4
POWER

Figure 7

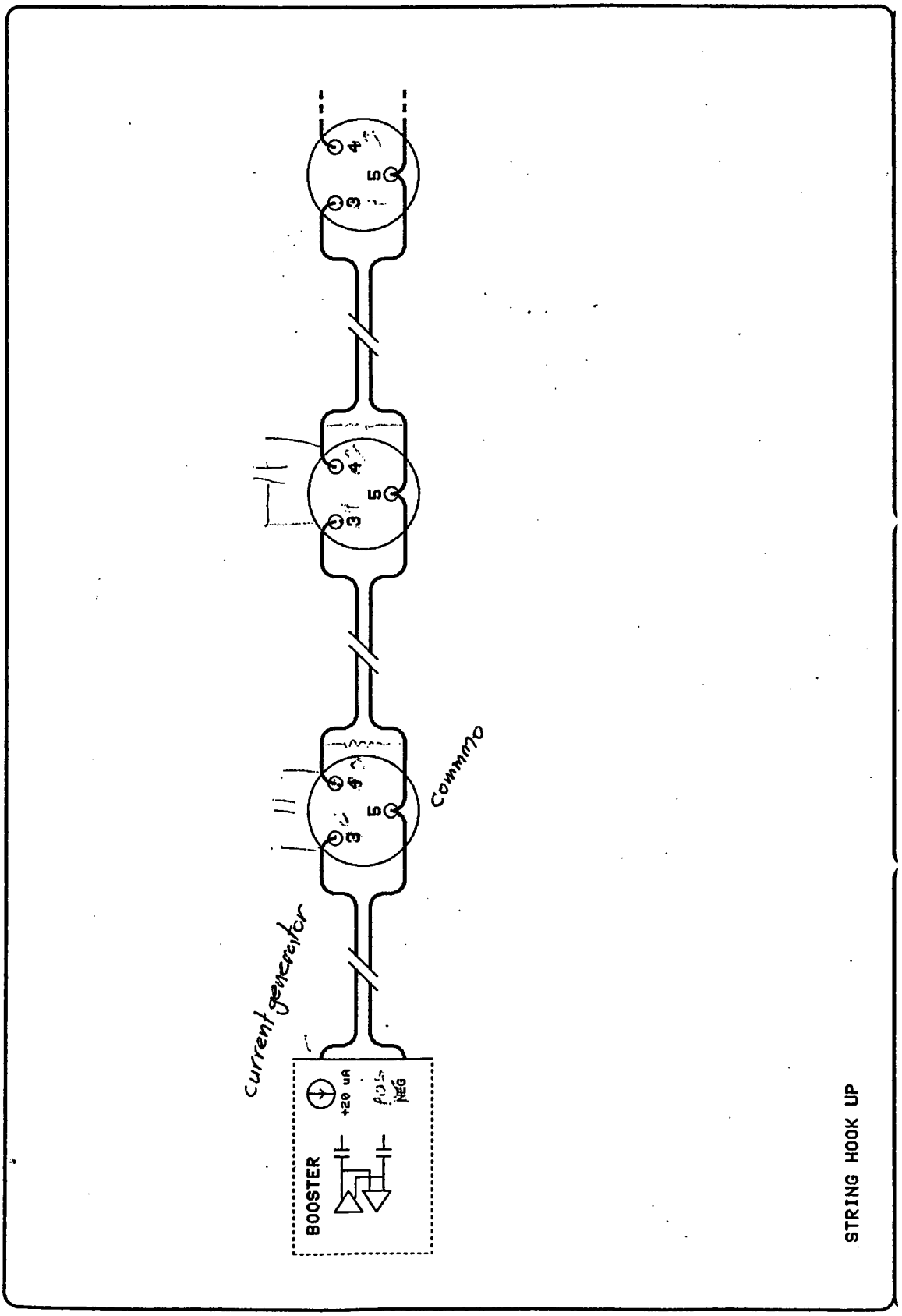

4
5
3
4
5
3
4
5
3
common
current generator
+20 uA
NEG
BOOSTER
STRING HOOK UP

Figure 8

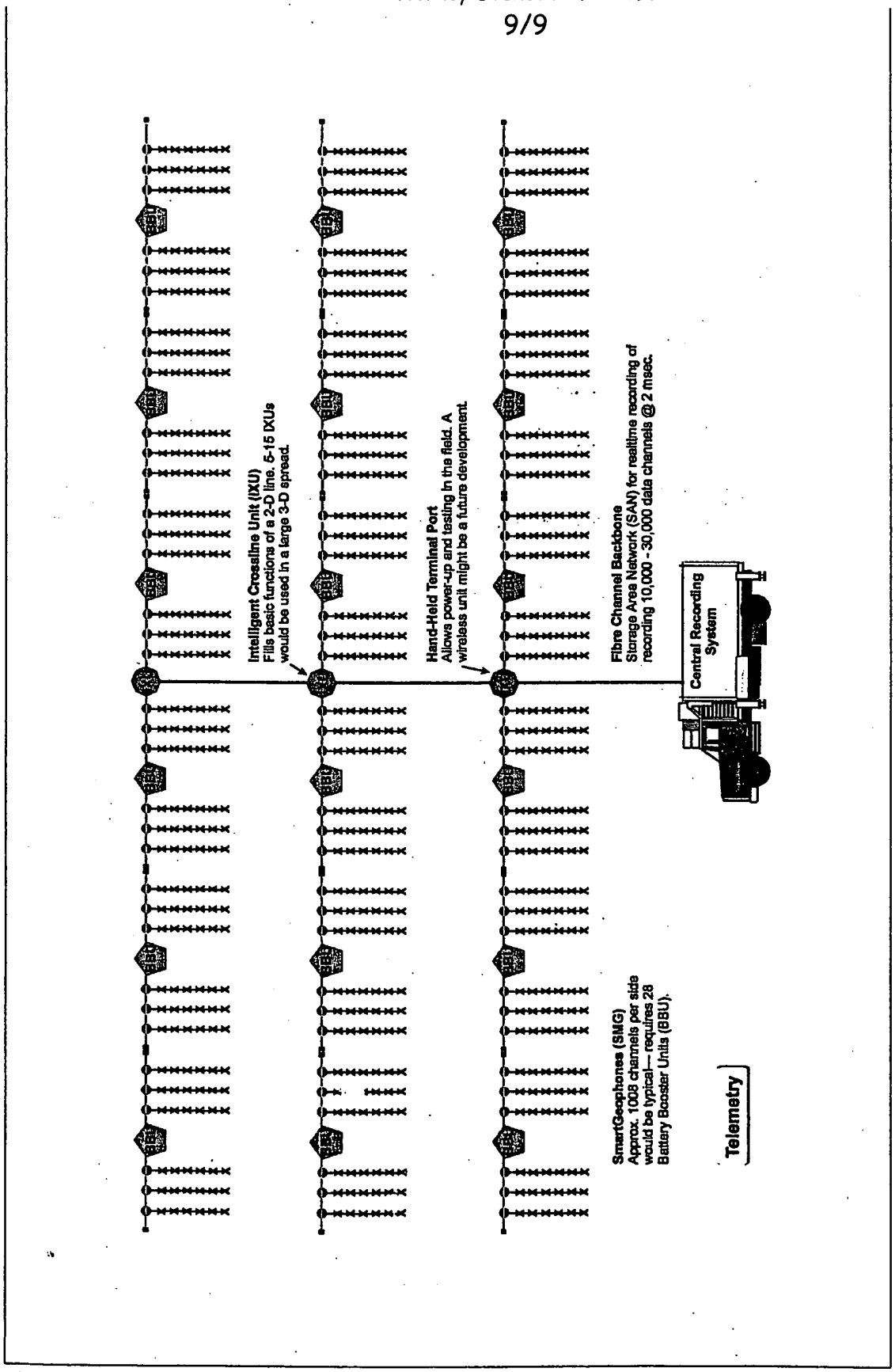

Intelligent Crossline Unit (IXU)
Fills basic functions of a 2-D line. 5-15 IXUs would be used in a large 3-D spread.
Hand-Held Terminal Port
Allows power-up and testing in the field. A wireless unit might be a future development.
Fibre Channel Backbone
Storage Area Network (SAN) for realtime recording of recording 10,000 - 30,000 data channels @ 2 msec.
Central Recording System
SmartGeophones (SMG)
Approx. 1008 channels per side would be typical— requires 28 Battery Booster Units (BBU).
Telemetry

Figure 9